Next 1 Page(s) In Document Exempt

ILLEGIB

Approved For Release 2003/08/22 : CIA-RDP78T05439A000500190003-7

25X1 [redacted]

[redacted] 2

PHOTOGRAPHIC INTERPRETATION REPORT

HF COMMUNICATIONS FACILITIES AT OR NEAR SELECTED SOVIET MRBM AND IRBM COMPLEXES

June 1965

NATIONAL PHOTOGRAPHIC INTERPRETATION CENTER

25X1

25X1

25X1

25X1

PREFACE

In response to numerous and overlapping requirements, a comprehensive photographic analysis has been undertaken in an effort to identify communications facilities considered to be available for use by the Strategic Rocket Forces of the USSR. Because of the scope of the entire project, the time-consuming search and measurement factors involved, and the consequent multiplicity of effort, it was not feasible to make the results of the study available in a single publication.

The present report, therefore, which extends coverage of MRBM and IRBM-related communications, is but 1 of a series of approximately 4 publications, each of which forms a convenient subunit of the larger overall project. Already published are NPIC R-795 64, New HF Communications Facilities at Soviet MRBM IRBM Launch Areas, August 1964, and NPIC TCS-80427 65, HF Communications Facilities at or Near Soviet ICBM Complexes, April 1965. A final report is anticipated to cover possibly related communications available in the Moscow area.

TOP SECRET

25X1

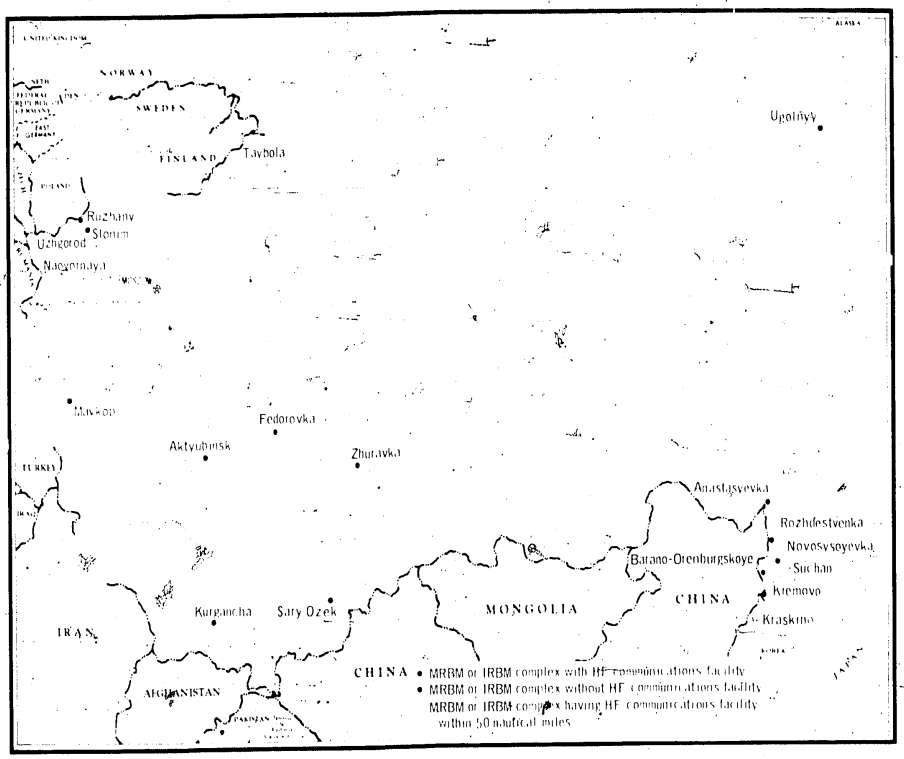


FIGURE 1. LOCATION OF MRBM AND IRBM COMPLEXES DISCUSSED IN THIS REPORT

25X1

TOP SECRET

25X1

25X1

25X1

25X1

INTRODUCTION

An analysis of the most recent and best [redacted] photography covering all known MRBM and IRBM complexes in the Soviet Far East and Central Asia, as well as certain specifically requested complexes in the western portion of the USSR, has identified high-frequency (HF) communications facilities at or near many of these complexes. In addition, where no communications could be identified within the general limits of the complex itself, a further search of a 50-nautical-mile (nm) surrounding area was undertaken.

Of the 19 complexes included in this report (Figure 1), the results of this study have revealed:

1. Communications Facilities at MRBM and IRBM Complexes. Identifiable HF communications facilities were found in the immediate vicinity of a total of 9 complexes: Ruzhany, Slonim, Maykop, Kurgancha, Sary Ozek, Novosysoyevka, Anastasyevka, Barano-Orenburgskoye, and Ugolnyy (Figures 2-11, and Table 1). Because of their location and generally similar characteristics, these facilities are felt to be definitely associated with their respective complex.

2. Communications Facilities Within 50 nm of MRBM and IRBM Complexes. An assortment of HF communications facilities was found within the 50-nm radius of the search area at 8 more complexes: Taybola, Uzhgorod, Nadvornaya, Kremoto, and Suchan (Figures 12-18). For 1 reason or another, it is not possible to categorize these facilities further, and individual comments are offered in the detailed description of each.

3. No identifiable HF communications facilities were found at or within 50 nm of the remaining 5 complexes: Aktyubinsk, Fedorovka, Zhuravka, Rozhdestvenka (abandoned), and Kraskino.

No microwave equipment could be identified at or within 50 nm of any of the complexes except Taybola, for which an earlier, detailed study had been made on the basis of excellent [redacted] photography. 1 Also, scale and quality factors generally precluded any precise determination of construction status at these facilities, although where definite antenna patterns exist, it could be assumed that the antennas were operational.

ILLEGIB

For each of the identified facilities where it was both possible and relevant to do so, antenna types, numbers, orientations, and possible correspondents have been determined. The antenna azimuths are considered accurate to within plus-or-minus [redacted] except for vee antennas, where a plus-or-minus 5-degree spread is needed. It should also be noted that only possible correspondents are given--these having been derived solely by extending great circles from each identified antenna, though with consideration given to probable range limits of the particular type and the possible azimuth error.

COMMUNICATIONS FACILITIES AT MRBM AND IRBM COMPLEXES

All the facilities in this group are generally similar, and variations tend to follow relatively clear-cut technical necessities.* For example, antennas present at nearly all sites are 2

[redacted]

ILLEGIB

[redacted]

25X1

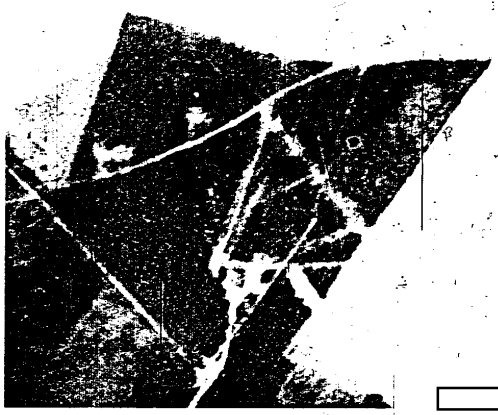
short-range types, the horizontal dipole and the vee. These antennas appear to be essentially identical to those previously found at the other MRBM and IRBM complex facilities in the western USSR, 2/ although it should be noted that the antennas themselves are not visible on the small-scale photography generally available and all characteristics are inferred from such indicators as typical arrangements and the spacings of guy-anchor positions. The longer range fishbone-type antenna is not found at facilities in the western USSR, but does begin to occur regularly in Central Asia and farther east, thus following a pattern consistent with the antenna engineering design requirements for the greater distances involved. When present, the fishbone antennas tend to be paired--that is, 2 antennas of similar size are oriented in 1 direction. This pairing indicates a possible back-up on the same frequency.

It is interesting to note that Moscow appears as the possible correspondent for over half the facilities, ranging from Barano-Orenburgskoye in the extreme eastern portion of the USSR to Slonim near the Polish border.

Each of the facilities in this section, which are named for their respective complex (with the nearest launch site given in parenthesis, if different), is completely described and illustrated with a photograph and line drawing. In addition, for convenience in comparison, pertinent data have been collected into Table 1.

RUZHANY (KRUPA) FACILITY

An HF communications facility (Figure 2) is situated 1 nm east-northeast of Krupa Launch Site 2 of the Ruzhany MRBM Complex and contains 1 large and 1 small vee antenna (items 1 and 2), 6 horizontal dipole antennas (item 3), and a control building, all within a fence-enclosed area. The large vee is oriented at an azimuth of 140/320 degrees, the small vee at 5/185, and all of the horizontal dipoles at the same azimuth [redacted] none of their possible correspondents have yet been determined.



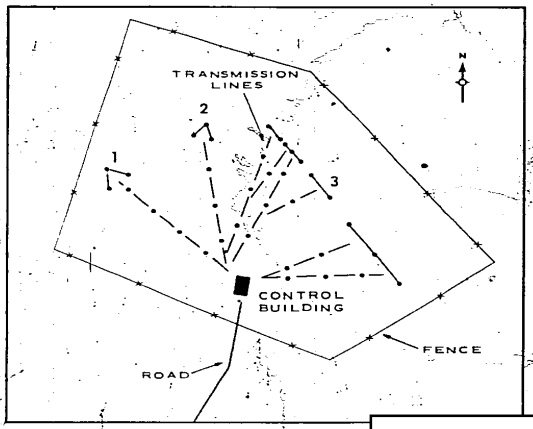


FIGURE 2. RUZHANY HF COMMUNICATIONS FACILITY.

25X1

25X1

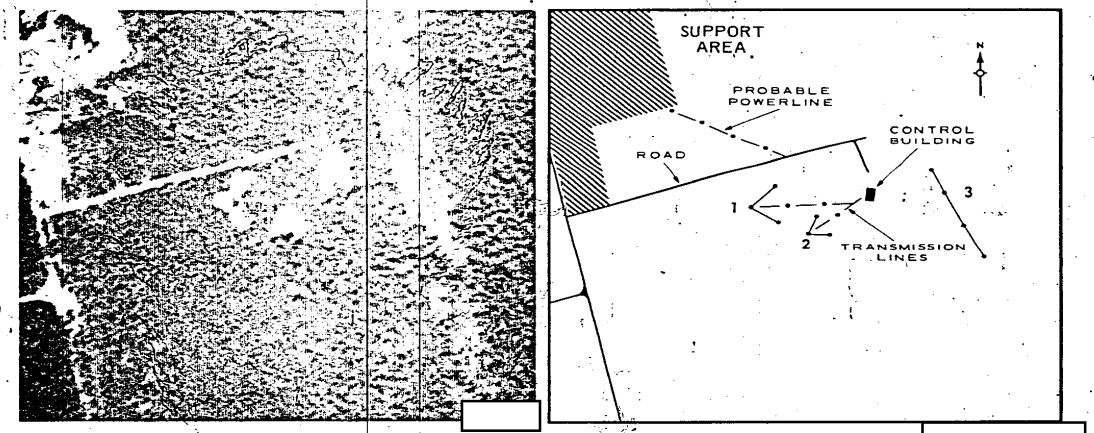
2

SLONIM (BYTEN) FACILITY

An HF communications facility (figure 3) is situated 0.25 nm southeast of Byten Launch Site 1 of the Slonim MRBM Complex and contains 1 control building, 1 large and 1 small vee antenna (items 1 and 2), and 3 horizontal dipole antennas (item 3). Security measures, if present, are not apparent on the photography. The large vee is oriented at 90/270 degrees, the small vee at [redacted] and all of the horizontal dipoles at the same azimuth [redacted]. Moscow is indicated as the possible correspondnet of the small vee.* (Because of errors on the referenced map, some earlier reports may have suggested the existence of 2 facilities at this complex; there is only 1.)

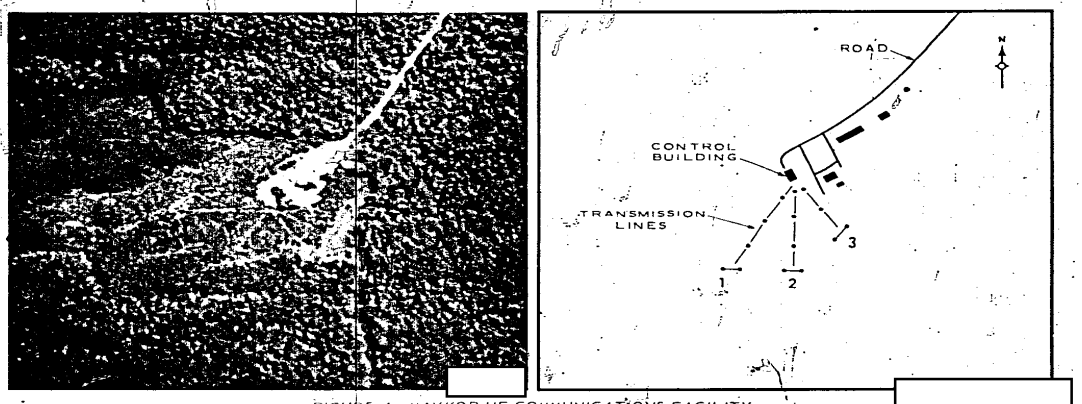
25X1

25X1



25X1

FIGURE 3. SLONIM HF COMMUNICATIONS FACILITY.



25X1

FIGURE 4. MAYKOP HF COMMUNICATIONS FACILITY.

25X1

25X1

25X1

25X1

MAYKOP (TULSKAYA) FACILITY

An HF communications facility (Figure 4) is situated 2.5 nm east of the Tulskaya Fixed Field Site of the Maykop MRBM Complex and consists of a cleared area containing a control building, several support buildings, and 3 probable horizontal dipole antennas (items 1-3). Although, as usual, the antennas themselves cannot be observed, the ground scarring from guy anchors and transmission lines is very noticeable. Antenna orientations of 125/305, 130/310, and 175/355 degrees indicate that possible correspondents are Krasnodar and Rostov. (Additional information on this site may be found in NPIC/R-795/64, August 1964. 2/)

KURGANCHA FACILITY

An HF communications facility (Figure 5) is situated 0.1 nm west of Kurgancha MRBM Launch Site 2 and consists of a control building and a fishbone antenna (item 1) within a large secured area. The antenna is oriented on an azimuth of 160/340 degrees, with Murmansk indicated as its possible correspondent. (Additional information on this facility may be found in NPIC/R-326/64, May 1964. 3/)

SARY OZEK (KARA BABAU) FACILITY

An HF communications facility (Figure 6) is situated at the northwest corner of Kara Babau Site 1 of the Sary Ozek IRBM Complex and contains 2 fishbone antennas (item 1), 2 vee antennas (items 2 and 3), and 2 horizontal dipole antennas (item 4). The facility is fence secured and has a control bunker and a single small support building. The pair of fishbones is oriented [redacted] the large vee [redacted] and the 2 horizontal dipoles [redacted] Moscow is indicated as the possible correspondent of the pair of fishbone antennas. (Additional information on this site may be found in NPIC/R-795/64, August 1964. 2/)

25X1
25X1
25X1
25X1

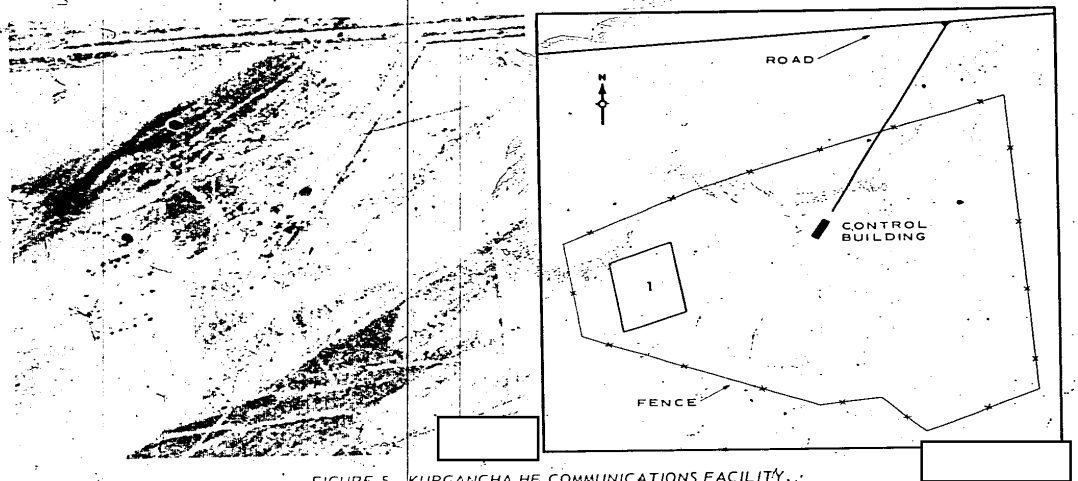


FIGURE 5. KURGANCHA HF COMMUNICATIONS FACILITY

25X1

25X1

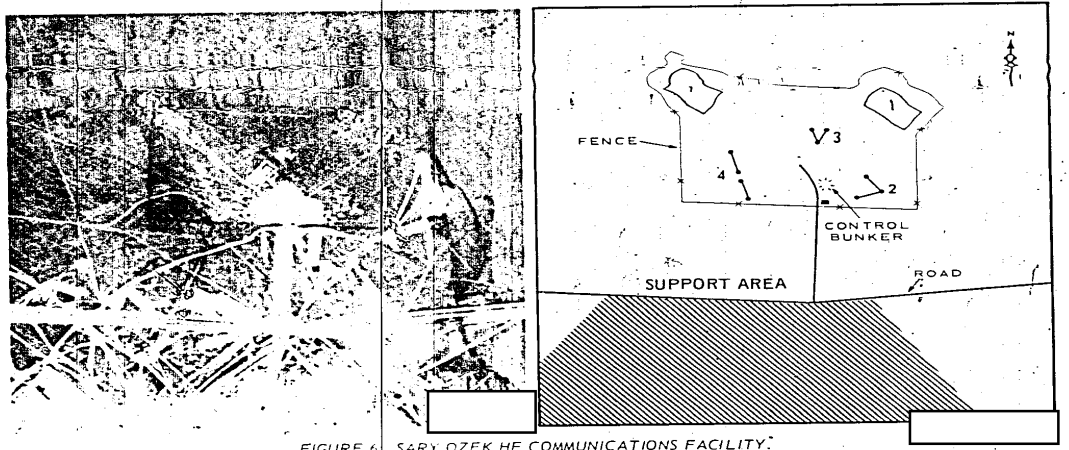
25X1

25X1

25X1

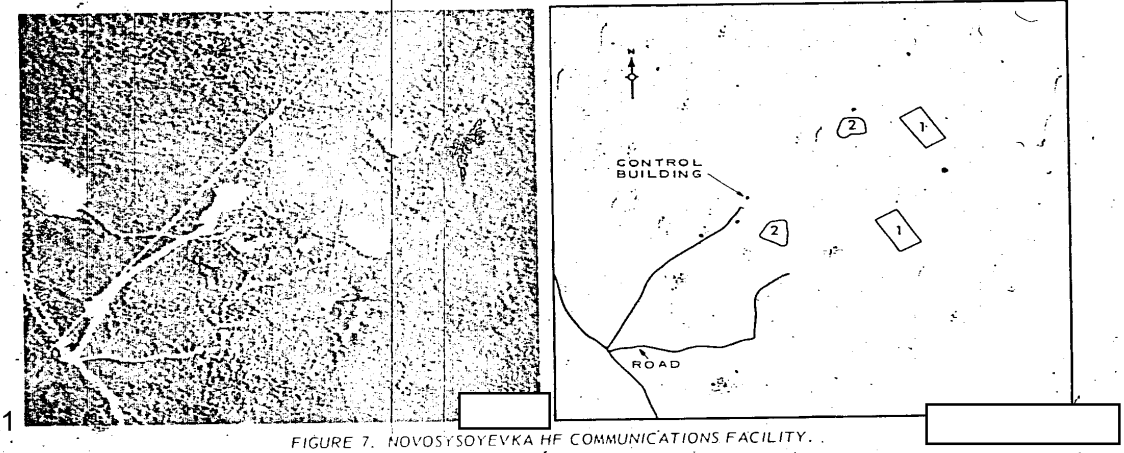
NOVOSYSOYEVKA FACILITY

An HF communications facility (Figure 7) is situated approximately 1 nm north-northwest of Novosysoyevka IRBM Launch Site 1 and contains 2 fishbone antennas (item 1) oriented at 140/320 degrees and 2 possible vee antennas (item 2) oriented [redacted]. There is a control building and a support building; no security fencing is visible. Moscow is indicated as the possible correspondent of the pair of fishbones. (The Chernyskevka HF communications facility, see below, is situated 10 nm southwest.)



25X1

FIGURE 6. SARY OZEK HF COMMUNICATIONS FACILITY.



25X1

FIGURE 7. NOVOSYSOYEVKA HF COMMUNICATIONS FACILITY.

25X1

ANASTASYEVKA PROBABLE TRANSMITTING FACILITY

A probable HF communications transmitting facility (Figure 8) is situated about 1 nm north of Anastasyevka MRBM Launch Site 1 and contains a day-night pair of rhombic antennas (item 1) oriented [redacted] 25X1 a vee-antenna (item 2) oriented at 85/265, and possibly 2 horizontal dipole antennas (item 3) of undeterminable orientation.* There is a single control building and no security measures are visible. This facility is older than the other facilities in this group, and contains rhombics instead of the usual fishbone antennas.

ANASTASYEVKA RECEIVING FACILITY

An HF communications receiving facility (Figure 9) is situated approximately 1 nm south of Anastasyevka MRBM Launch Site 1 and contains 2 fishbone antennas (item 1) oriented at 25X1 [redacted] degrees and a probable horizontal 25X1 dipole antenna (item 2) oriented at [redacted]. There is a control building and a support building; no security measures are visible. Moscow is indicated as the possible correspondent of the pair of fishbones.

*Recent, better-quality photography may alter this interpretation.

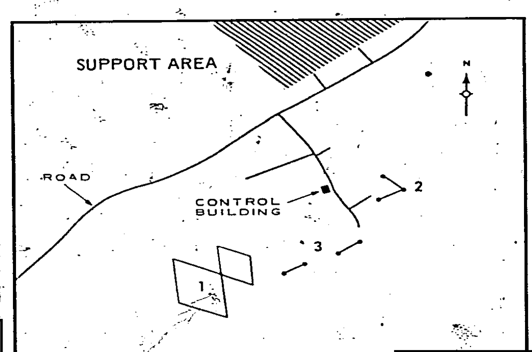
BARANO-ORENBURGSKOYE FACILITY

An HF communications facility (Figure 10) is situated approximately 1.2 nm east of the Barano-Orenburgskoye MRBM Launch Site and consists of a control building, a small support area, 2 fishbone antennas (items 1 and 2), and a probable vee antenna (item 3). The fishbones appear to be oriented on different azimuths (140/320 and 160/340 degrees) with Moscow indicated as the possible correspondent of the former. The available photography is not of sufficient quality to allow determination of the orientation of the probable vee antenna.

UGOLNYY FACILITY

An HF communications receiving facility (Figure 11) is situated 1 nm south of the Ugolnyy MRBM Launch Site and contains 4 fishbone antennas (items 1 and 2), a horizontal dipole antenna (item 3), a control building, and several support buildings.* The fishbones appear to constitute 2 pairs, oriented at [redacted] 25X1 [redacted] 25X1 the horizontal dipole is at 120/300. (Additional information on this facility may be found in NPIC/R-753/64, August 1964. 4)

25X1 [redacted]



[redacted]

FIGURE 8. ANASTASYEVKA PROBABLE HF COMMUNICATIONS TRANSMITTING FACILITY.

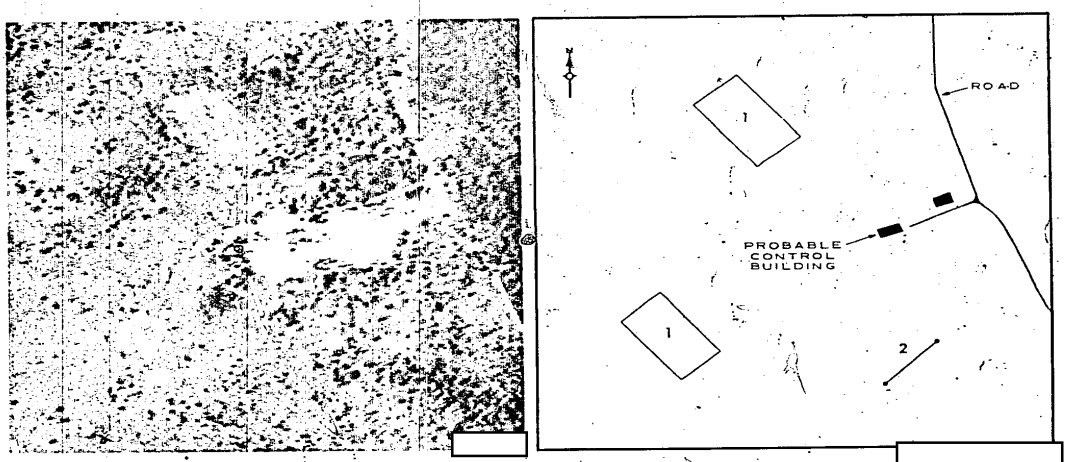
25X1

25X1

25X1

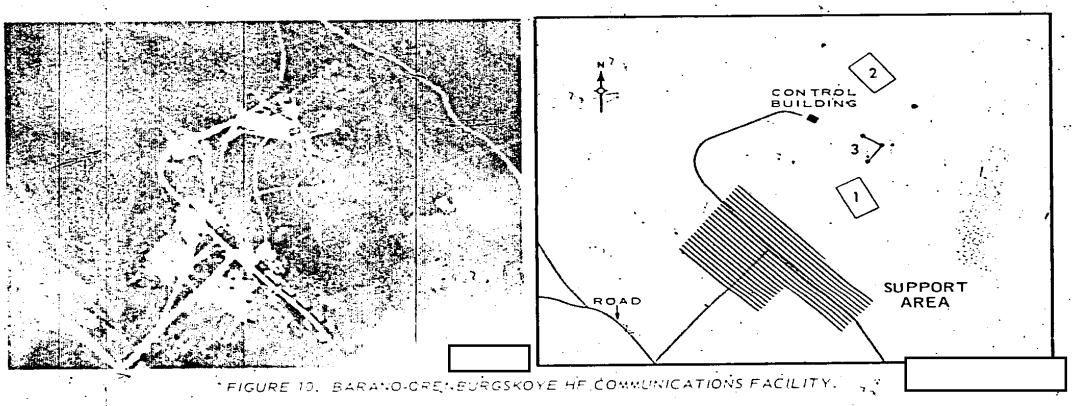
COMMUNICATIONS FACILITIES WITHIN 50 NM OF MRBM AND IRBM COMPLEXES

This section includes facilities found within 50 nm of the Taybola, Uzhgorod, Nadvornaya, Kremovo, Novosysoyevka, and Sushan complexes. These facilities cannot be identified as being related to any of the complexes, and their inclusion herein should not be taken as an implication that any such relationship is intended except as specifically noted in the individual descriptions that follow. As will be noted, a wide variety of installations is included, and about all that the facilities appear to have in common is the coincidence of happening to be situated



25X1

FIGURE 9. ANASTASIYEVKA HF COMMUNICATIONS RECEIVING FACILITY.



25X1

FIGURE 10. BARANOVICHESKOYE HF COMMUNICATIONS FACILITY.

25X1

TOP SECRET

25X1

25X1

within the limits of the search area for this project.

Each of the facilities is illustrated, however, and at least a brief description is included, together with any comments that seemed pertinent to the possible function or relationship of the facility.

TAYBOLA AREA

No HF communications facility was found at the Taybola IRBM Complex, but within a 50-nm radius there are a number of communications facilities in the Olenegorsk area and 1 near Murmansk. It is not possible to determine from available photography whether any of these facilities have direct connection with the Taybola Complex, but a possible Olenegorsk-Taybola microwave link is discussed in NPIC/R-366/64, June 1964. 1/

Murmansk Area Probable Communications Transmitting Facility

25X1

Map: ACIC, US Air Target Chart, Series 200, Sheet 0051-23HL, 3d ed, Sep 63, scale 1:200,000 (S)

This facility (Figure 12), situated about 35 nm north-northwest of the Taybola Complex at 68-30N 33-23E, consists of 2 rhombic antennas oriented at 10/190 (item 1) and [redacted] (item 2), a large vertical radiator broadcast antenna (item 3), a control building with 2 cooling ponds, and a few support buildings. There is every indication that this is a transmitting facility, and possible correspondents are Moscow and Volgograd for Antenna 1 and Leningrad for Antenna 2.

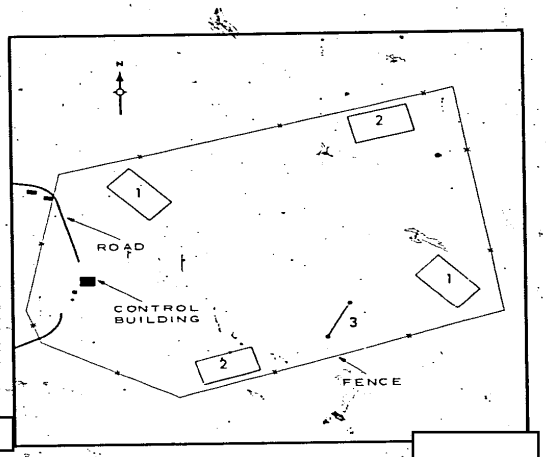
25X1

Olenegorsk Area Communications Facilities

25X1

Map: DIA, US Air Target Chart, Series 200, Sheet 0051-23HL, 3d ed, Sep 63, scale 1:200,000 (S)

This area contains 2 large HF communications centers, 1 for transmitting and the other for receiving, which are covered only briefly



25X1

25X1

FIGURE 11. UGOLNYY HF COMMUNICATIONS RECEIVING FACILITY

25X1

[redacted]

25X1

25X1 25X1

Table 1. HF Communications Facilities at Selected MRBM and IRBM Launch Areas

Location		Antenna		Photography	
Associated MRBM or IRBM Complex (site)	Coordinates	Number and Type	Possible Correspondent		Map Reference** (sheet number)
Ruzhany (Krupa)	52-49-30N 24-15-30E	1 large V 1 small V 6 dipoles	Undetermined Undetermined Undetermined		0168-18
Slonim (Byten)	52-55-30N 25-21-30E	1 large V 1 small V 3 dipoles	Volgograd Moscow Undetermined		0168-18
Maykop (Tul'kaya)	44-31-45N 40-19-00E	1 dipole (prob) 1 dipole (prob) 1 dipole (prob)	Krasnodar Krasnodar Rostov		0249-24
Kurgancha	39-37-00N 65-57-00E	1 fishbone	Murmansk		0237-5AL
Sary Ozek (Kara-Babau)	44-32-00N 77-46-15E	2 fishbones 1 large V 1 small V 2 dipoles	Moscow Volgograd Undetermined Undetermined		0244-22
Novo-Ayanovka	44-44-30N 133-26-00E	2 fishbones 2 V (poss)	Moscow Yakutsk		0282-22V
Anastasyevka*** (prob transmitting)	48-36-00N 135-38-45E	1 pyramidal rhombics 1 V 2 dipoles (poss	Igarka, Arkhangelsk Undetermined Undetermined		0201-22HL
Anastasyevka (receiving)	48-35-00N 135-38-00E	2 fishbones 1 dipole (prob)	Moscow Dzhalinda		0201-22HL
Baranovskoye	44-49-45N 131-30-45E	1 fishbone 1 fishbone 1 V (prob)	Moscow Undetermined Undetermined		0282-21V
Ugolnyy***	64-46-00N 177-51-00E	2 fishbones 2 fishbones 1 dipole	Nordik Khabarovsk Zighansk		0075-21A

25X1 *"S" for V antennas [redacted]

**Map reference is to US Air Target Chart, Series 200 (scale 1:200,000).

***Recent, better-quality photography may alter this interpretation.

TOP SECRET

TOP SECRET

25X1

25X1

25X1

here but have been described and illustrated in greater detail in NPIC/R-366/64, June 1964. 1/ The present report does offer some supplemental information in the tables on Figures 13 and 14.

In addition, there is a third and smaller site, newly identified and still under construction, which has been fully covered in NPIC January 1965, 5/ and is not described further in this report.

1. Regional HF Communications Transmitting Center. This facility (Figure 13) contains 15 rhombic antennas arranged for the most part in day-night pairs (items 1-8) and a vertical radiator broadcast antenna (item 9). Where possible, the orientations and possible correspondents are given, but because of mensural difficulties caused by oblique photography, the azimuths should only be considered accurate to within plus-or-minus 5 degrees.

2. Regional HF Communications Receiving Center. This facility (Figure 14) contains at least 12 fishbone antennas (items 1-12) together with associated control and support buildings. As with the facility above, the obliquity of the photography prevents an azimuthal accuracy greater than plus-or-minus 5 degrees.

UZHGOROD AREA

Map: DIA, US Air Target Chart, Series 200, Sheet 0232-23HL, 2d ed, Aug 63, 1:200,000 (S)

An apparent HF radio relay and regional broadcasting facility (Figure 15) is situated 4 nm south of Uzhgorod and 3 nm east of the Uzhgorod MRBM Complex. The facility contains a double rhombic antenna (item 1), 2 guyed towers with associated antenna-coupling build-

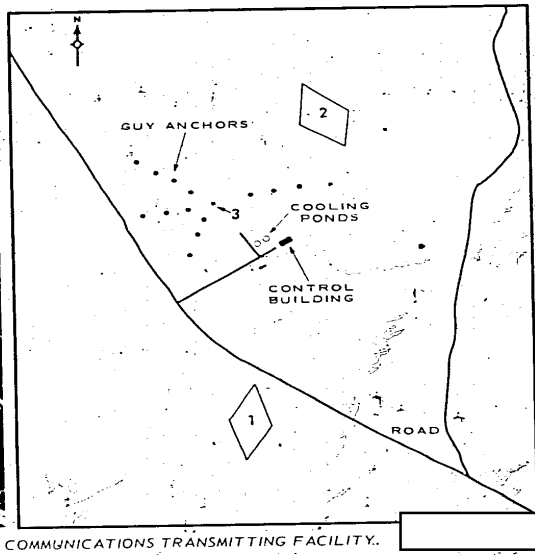


FIGURE 12. MURMANSK AREA PROBABLE COMMUNICATIONS TRANSMITTING FACILITY.

25X1 [redacted]

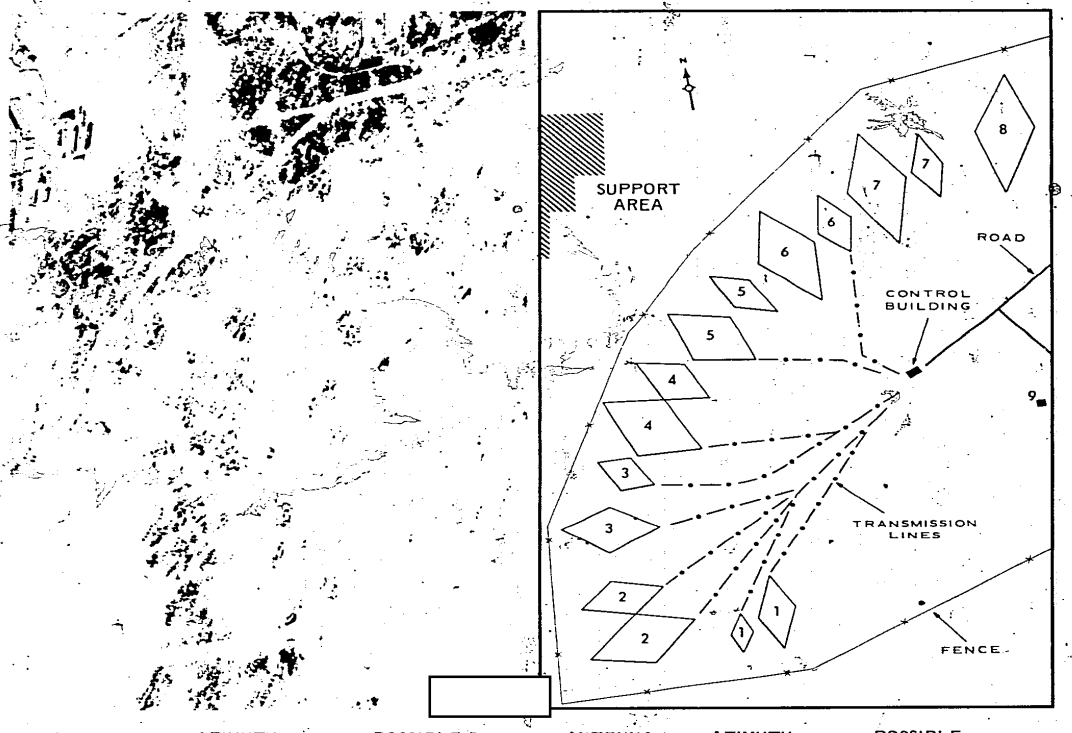
[redacted]

ings (item 2), a control building, 2 cooling ponds, 5 maintenance storage buildings, and an area of unidentifiable ground scars, all within a fence-secured area. All but the double rhombic and the ground-scar area were present in [redacted] the earliest available photog-

25X1 [redacted]

raphy of the area. Although relatively close to an MRBM complex, this facility differs markedly in equipment and appearance from the first group of facilities, which are considered to be typical.

25X1



[redacted]

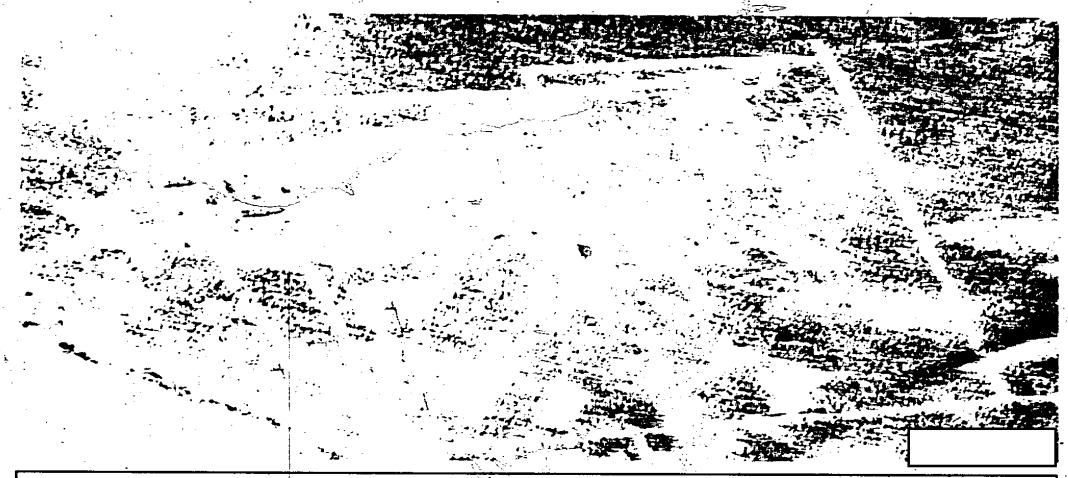
ANTENNA NUMBER	AZIMUTH (±5°)	POSSIBLE CORRESPONDENT	ANTENNA NUMBER	AZIMUTH (±5°)	POSSIBLE CORRESPONDENT
1	Undetermined	Undetermined	5	[redacted]	Kuybyshev
2	Undetermined	Undetermined	6		Gorkiy
3	[redacted]	Omsk	7		Moscow
4		Sverdlovsk	8		Kiyev

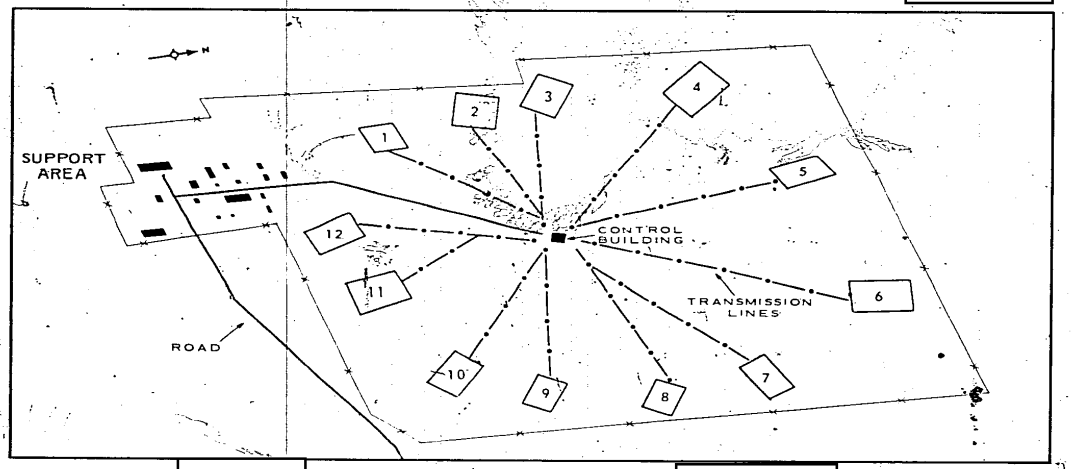
25X1 [redacted]

25X1

FIGURE 13. REGIONAL HF COMMUNICATIONS TRANSMITTING CENTER, OLENEGORSK.

[redacted] 25X1





ANTENNA NUMBER	POSSIBLE CORRESPONDENT	ANTENNA NUMBER	POSSIBLE CORRESPONDENT
1	Undetermined	7	Undetermined
2	Omsk	8	Undetermined
3	Kirov	9	Kirov
4	Kuybyshev	10	Gorkiy
5	Undetermined	11	Leningrad
6	Leningrad	12	Undetermined

Undetermined
0 180

FIGURE 14. REGIONAL HF COMMUNICATIONS RECEIVING CENTER, OLENEGORSK.

NADVORNAYA AREA (KOLOMYYA)

25X1 [redacted]

Map: DIA. US Air Target Chart, Series 200, Sheet 0232-25HL, 2d ed, Jun 62, 1:200,000 (S)

An HF communications facility (Figure 16) is situated about 13 nm southeast of the Nadvornaya MRBM Complex and 4.5 nm north-[illegible] of Kolomyya. The facility contains 1 single-bay fishbone antenna (item 1) oriented [redacted] degrees, 2 horizontal dipole antennas (item 2) oriented at [redacted] small vee antenna (item 3) oriented [redacted] 1 large vee antenna (item 4) oriented [redacted] a control building, and 2 maintenance storage buildings, all within a fence-secured area. Possible correspondents are indeterminate except for the fishbone antenna, the forward azimuth of which intersects Moscow. Although this facility is located farther than usual from a complex, its overall appearance, its components, and even its construction chronology would tend to suggest that it could be placed in the first grouping.

ILLEGIB 25X1

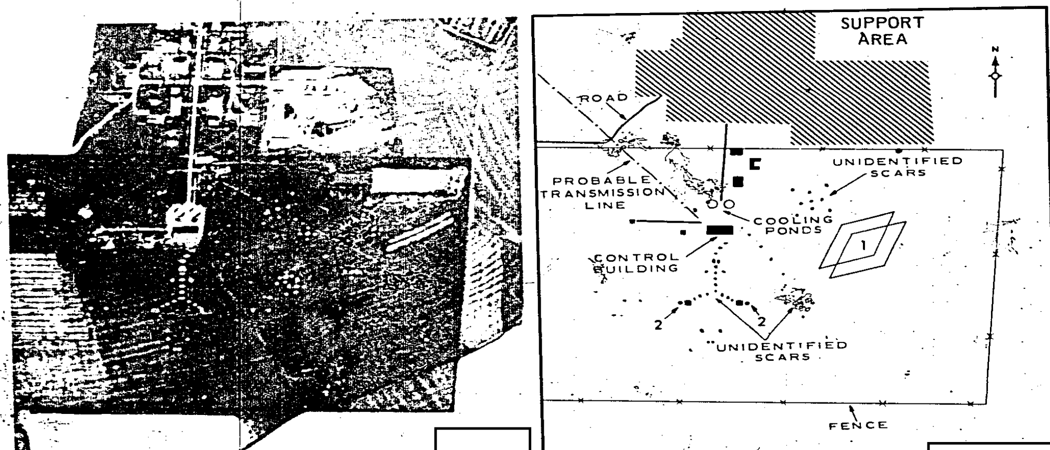
KREMOVO-NOVOSYSOYEVKA AREA (CHERNYSKEVKA)

[redacted] 25X1

Map: ACIC. US Air Target Chart, Series 200, Sheet 0282-22HL, 2d ed, Jan 63, scale 1:200,000 (S)

An HF communications facility (Figure 17) is situated near Chernyskevka at 43-13N 132-10E, approximately 35 nm east of the Kremovo MRBM Complex and 10 nm southwest of the Novosysoyevka IRBM Complex. It contains a day-night double rhombic antenna pair (item 1) oriented at [redacted] degrees with Chita and Omsk indicated as possible correspondents, 2 or more possible horizontal dipole antennas (item 2), 1 or more possible vee antennas (item 3), a control building, and several support buildings, all within a fence-enclosed area.

25X1



25X1 [redacted] [redacted]

FIGURE 15. UZHGOROD AREA COMMUNICATIONS FACILITY.

25X1

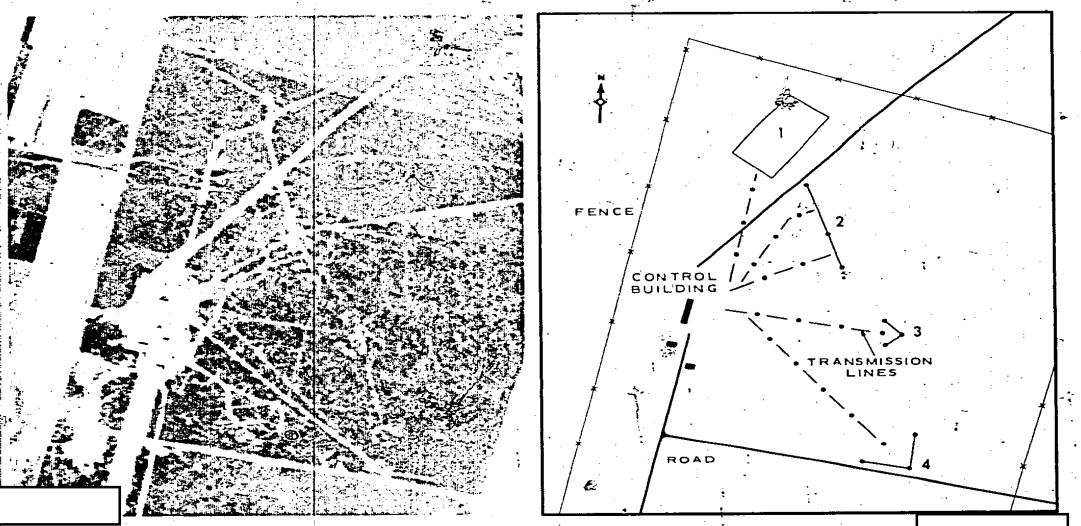


FIGURE 16. NADVORNAYA AREA COMMUNICATIONS FACILITY.

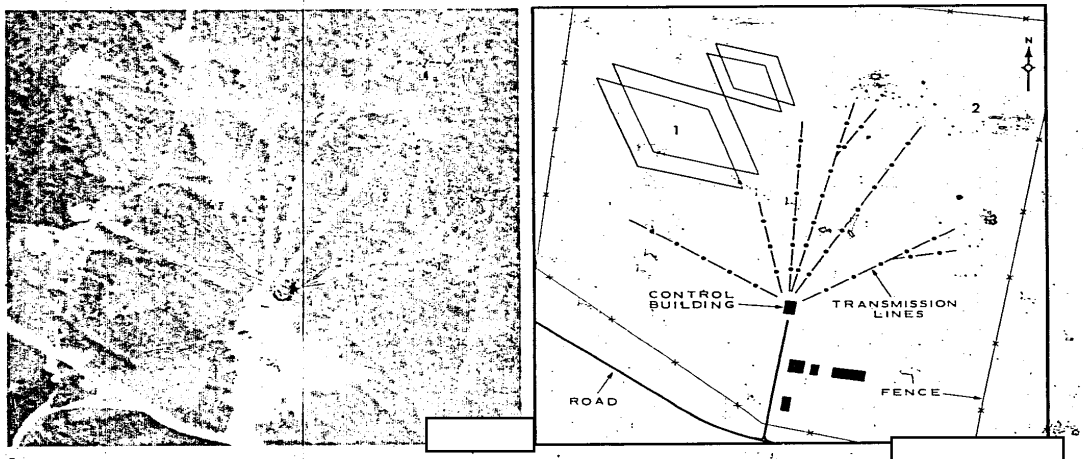


FIGURE 17. HF COMMUNICATIONS FACILITY, CHERNYSKEVKA.

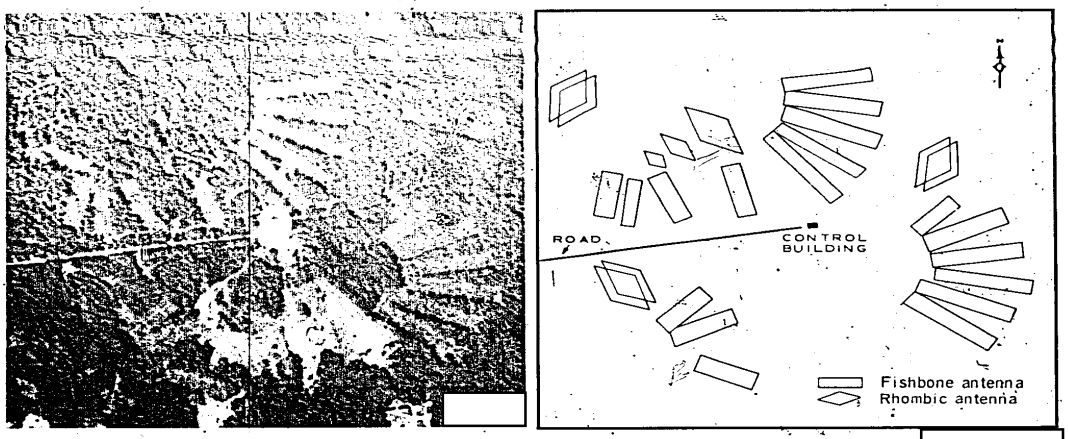


FIGURE 18. HF COMMUNICATIONS FACILITY, ARTEM.

It should be noted that these types of antennas, which can be used for either transmitting or receiving, are not typical of those found at the usual MRBM or IRBM complex communications facility, which are generally for receiving only.

SUCHAN-KREMOVO AREA (ARTEM)

Map: ACIC, US Air Target Chart, Series 200, Sheet 0291-1HH, 2d ed, Jun 64, scale 1:200,000 (S)

A large HF communications facility (Figure 18) is situated near Artem at 43-13N 132-12E, 45 nm north-northeast of the Suchan MRBM Complex. At least 6 single and double rhombic antennas and 18 fishbone antennas can be identified, but their number and orientation indicate that this facility is not used primarily by the Soviet Rocket Forces and it is, therefore, included in this report simply because it falls within the 50-nm search area. Both the rhombic and fishbone antennas appear to be aimed toward the east over the Sea of Okhotsk and the Sea of Japan. Azimuths for the rhombics

25X1

and 140 degrees; for the fishbones

25X1

25X1

TOP SECRET [redacted]

25X1 [redacted]

25X1

[redacted]

REFERENCES

DOCUMENTS

1. NPIC, R-366/64, *Air Defense (PVO) Electronic Facilities at Selected Locations*, USSR, Jun 64 (TOP SECRET [redacted]

25X1

2. NPIC, R-795/64, *New HF Communications Facilities at Soviet MRBM, IRBM Launch Areas*, Aug 64 (TOP SECRET [redacted]

25X1

3. NPIC, R-326/64, *Fishbone High-Frequency Communications Receiving Antennas, Kapustin Yar MRBM Launch Area No. 2, USSR*, May 64 (TOP SECRET [redacted]

25X1

4. NPIC, R-753/64, *Communications Antennas, Tyuratam Launch Area, USSR*, Aug 64 (TOP SECRET [redacted]

25X1

5. NPIC, [redacted] *Communications Facility, Okhotsk, USSR*, Jan 65 (TOP SECRET [redacted]

25X1

RELATED DOCUMENT

NPIC, [redacted] *HF Communications Facilities at or Near Soviet ICBM Complexes*, Apr 65 (TOP SECRET [redacted]

25X1

REQUIREMENTS

CIA, C-RR4-81,798 (partial answer)

[redacted]

NPIC PROJECTS

11754/64 (partial answer)

12038/64

25X1

[redacted]

TOP SECRET